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ABSTRACT

Consideration of choice-based reform in educational governance rests heavily on the assumption that markets will improve school performance. Nonetheless, little empirical research has examined how educational organizations respond to competition. This paper hypothesizes that administrators are likely to respond by adopting governance reforms--particularly decentralization and staff-empowerment measures--advocated by educational reformers. This study further suggests that they are most likely to pursue decentralization when the costs of persuasion and monitoring are low. The study uses data from Arizona to assess the effects of charter-school competition on empowerment in a sample of 87 public schools (959 teachers). Charter-school competition increased teacher empowerment in traditional schools by slight to moderate amounts from 1994-95 (before charter schooling was introduced) to 1997-98, but only in schools where teachers were already somewhat empowered prior to competition. At least in the short run, the effects of charter schooling in public-school governance depend on public-school structure and culture. (Author/DFR)

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Can Markets Set Bureaucrats Free? The Effects of School Choice on Teacher Empowerment in the Public Schools

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Abstract

Consideration of choice-based reform in educational governance rests heavily on the assumption that markets will improve school performance. Nonetheless, little work has empirically examined how educational organizations respond to competition.' We hypothesize that administrators are likely to respond by adopting governance reforms—particularly decentralization and staff empowerment measures—advocated by educational reformers. We further suggest that they are most likely to pursue decentralization when the costs of persuasion and monitoring are low. We use data from Arizona to assess the effects of charter school competition on empowerment in a sample of 87 public schools. Charter school competition increased teacher empowerment in traditional schools by slight to moderate amounts from 1994-95 (before charter schooling was introduced) to 1997-98, but only in schools where teachers were already somewhat empowered prior to competition. At least in the short run, the effects of charter schooling on public school governance depend on public school structure and culture.

Introduction

In recent decades, academics have been increasingly prone to view market mechanisms and competition as holding great promise for the reform of public agencies (*e.g.*, Niskanen 1971; Moe 1984; Bendor 1985; Horn 1995). However, the utility of "reinventing" the public sector via market mechanisms is hotly debated. Proponents of market-based reforms argue that subjecting public bureaucracies to competition increases efficiency, improves customer service, encourages innovation, and even improves the morale of government employees (Savas 1987; Osborne and Gaebler 1992; Barzelay and Armijani 1992; Gore 1993; Brandl 1998). Skeptics claim that market-based public service providers have not outperformed monopolistic ones, that the market testing of public services weakens the morale of public employees, and that market-based provision of public services threatens democratic governance (Goodsell 1994; Schachter 1997; Lowery 1998; Rainey and Steinbauer 1999).

The discourse over the promise of market-based reforms in education is particularly heated. This debate has gained attention within the discipline in recent years, as scholars have debated whether education consumers are likely to select schools based on educational quality or whether preferences unrelated to school quality will cause familial choice to increase segregation by race and social class (Lee et al. 1996; Martinez et al. 1996; Schneider et al. 1997, 1998; Smith and Meier 1995; Wells 1998; Wrinkle et al.1999).

Generally, advocates of market-based reform in education make two claims: [1] students attending schools of choice will learn more, and [2] competition will also improve traditional public schools (Friedman 1962, Norquist 1998). Thus far, research has tended to focus on the first claim. Regarding the claim that children will learn more in schools of choice, Rouse (1998) and Greene et al. (1999) find support for this claim, while Witte (1998) disputes their findings. Concerning the proposition that competition will improve traditional public schools, Hoxby (1998) and Dee (1998) find significant competition-induced improvements in the public schools; Armor and Peiser (1997, 1998) and Rofes (1998) find improvements in some cases; Wells (1998), Sanders (in press), and Gorard (1997) find no significant effects; and Smith and Meier

(1995) find that competition produces negative effects. Assessing the legitimacy of [2] is particularly important because most U.S. children will attend public schools in the near future even if choice options expand at a rapid clip. As a result, the largest near-term gains from market-based reforms may come from their ability to prompt improvements in the traditional public schools.

We examine how competition affects teacher empowerment in traditional public schools. This is a new direction in school choice research.[1] Our goal is to inject consideration of teacher empowerment into the debate on choice-based reforms. Rightly or wrongly, professional educators believe that teacher involvement in school governance is key to sustaining long term school reforms (Bryk et al. 1998; Cohen 1996; Darling-Hammond 1996; Elmore 1997; Elmore et al. 1996; Fuhrman et al. 1991; Fullan 1991; McLaughlin 1991a, 1991b; Mohrman and Lawler 1996; Sarason 1991; Wagner 1994).[2] In addition, in both the public and private sectors, administrative reformers maintain that organizations cannot be effective unless they "empower" their employees to make decisions (O'Toole 1995; Peters and Waterman 1982; Peters 1989; Barzelay and Armijani 1992; Osborne and Gaebler 1992). Indeed, the Clinton administration's National Performance Review, an effort to reinvent government, enshrined employee empowerment as one of its key principles (Gore 1993; DiIulio ed. 1994). Scholarly work also supports empowering bureaucrats (Rainey and Steinbauer 1999).

We label this position the "empowerment postulate." We do not attempt to assess the validity of the empowerment postulate. However, many scholars and decision-makers subscribe to it; hence one way of determining whether traditional public schools *are trying to respond to competition in a positive manner* is to assess whether competitive pressures induce greater staff empowerment in these schools. In other words, if school administrators are seeking to respond

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[1] Though Chubb and Moe (1988, 1990) compare empowerment levels between private and public schools, they did not explore whether competition prompts the latter schools to change empowerment.

[2] Notably, empowering teachers does not require taking power away from others inside a school. For example, Bryk et al (1998) found in their study of Chicago Local School Councils (LSCs) that effective LSCs empowered teachers, parents, and principals at the expense of district office officials. Less effective LSCs had no impact, or else concentrated power in the hands of principals.

to competition, one approach in which they have been schooled and with which they are familiar is empowering their staffs. This is our primary concern. Whether empowerment actually does lead to better public schools is a separate question that must be addressed elsewhere.

Beyond assessing the linkage between teacher empowerment and school choice, this research also has larger implications. Understanding how institutional arrangements influence the nature of teacher work can help us better understand schools and other public sector organizations. In particular, this study allows us to observe the pull of two potentially conflicting pressures: the temptation for public sector administrators to batten down the hatches in a stressful setting versus the urge to conform to expert advice when called to respond in a highly visible context. This conflict has not been explored systematically in previous research.

We assess the relationship between choice-induced competition and teacher empowerment by using charter schooling in Arizona as a laboratory. Charter schools are publicly funded schools that cannot selectively admit students, charge tuition, or mandate religious instruction, but otherwise are free from most district and state regulations. As schools of choice, charter funding depends on the number of parents who choose to enroll their children. Charter schooling is the most popular form of school choice in the United States today, and Arizona has the nation's most expansive charter school law. In March 1998, when this research was conducted, there were 222 charter campuses in Arizona, about one-fourth of the nation's total. While only 3.3% of Arizona public school students attended charter schools in the 1997-98 school year, this enrollment was spread unevenly across the state. While some districts had no charter schools, others had charter enrollments exceeding 10% of total public enrollment in the district; thus there was significant intrastate variation in the threat posed by charter schools.

How Public Organizations Respond to Competition: The Theoretical Context

Two viewpoints dominate the issue of competition and its likely impact on public sector organizations. The first, embraced by some advocates of market-based school reform (Friedman 1962, Norquist 1998), stresses the voluminous research which concludes that competition has

improved the performance of formerly regulated industries, and suggests that these results will be repeated in the case public education.

The second view, in contrast, stresses two factors when assessing the impact of competition on public agencies: [a] market imperfections and [b] institutional constraints. Concerning [a], economists themselves acknowledge that markets are imperfect mechanisms and depend on certain assumptions regarding the nature of the good and the potential market (Stiglitz 1988). For instance, there are sunk costs associated with school start-ups, inhibiting potential competitors. Hassel (1999) found this phenomena to be at work in the case of emerging charter school competition. In addition, education scholars have pointed out that for a variety of reasons, particularly because it is purchased by a third party and because quality is both difficult to define and monitor, education is a highly problematic market good (Elmore 1986, 1990). Accordingly, critics of school choice question whether the competitive model is likely to produce the desired changes in schools (Cookson 1994, Henig 1994, Wells 1998).

Concerning [b], unlike firms in many private markets, school systems are highly constrained by teacher contracts (Lieberman 1997), democratic politics (Chubb and Moe 1990), and larger institutional constraints (Hess 1999). Organizational scholars have long argued that these constraints have predictable and consistent effects that greatly limit the ability of public agencies to respond to competition. First, organizational leaders are not able to fully consider and assess their situation; instead they rely on proxies and easy cues (March 1988; March & Olsen 1987; Simon 1997, 1995, 1979). Second, when leaders find it difficult to provide the public with the good it demands, they often turn to symbolic responses and gestures (Hess 1999; Meyer & Rowan 1991; Tyack & Cuban 1995). Finally, leaders will tend to rely upon routines *that they already know how to do* when confronted with a new or threatening situation (Allison 1971). The reasoning here is that established routines can be increased at relatively low cost – in terms of persuasion and monitoring activities -- because employees are already familiar with them.

Peterson (1976) applied the Allison analysis to schooling in arguing that the behavior of the Chicago school board was constrained by patterned responses. As Peterson (1976: 113)

noted, "Operating procedures, once established and standardized, place constraints on the problem-solving activities of an organization." That is, regardless of how willing individuals are to respond to a changed environment, learned behavior and organizational procedures may limit their ability to respond.[3] The easiest response in the face of competition, then, may be to simply to do more of what the organization is already doing (as opposed to significantly changing its output). Similarly, in their discussions of the implementation of Chicago school level reforms in the 1990s, Bryk et al. (1998) found that preexisting school practices affect the way in which schools implement reform, with schools more apt to continue than break with past patterns in the short term.

That said, several qualifications should be noted. First, if a public agency already exhibits patterns of behavior that would enhance its performance in a competitive environment, then competition may spur useful changes, even in the short run. Second, while organizational constraints may severely impede useful changes in the short run, competition may attenuate these constraints in the long run. The relevance of these two qualifications, as well as what constitutes the short term, is an empirical question.

We build upon the insights of Allison and Peterson in constructing our short-run conceptual model of teacher empowerment and competition in the next section. In doing so, we are able to advance the study of how organizations respond to environmental threat in two key ways. First, we are able to examine a relatively competitive school environment. Most past research has been forced to assess less competitive forms of school competition. As Hassel (1999) demonstrates, legislative restrictions reduce the number and educational diversity of charter schools in many states, such as in California, which was studied by Wells (1998). Similarly, Dee (1998), Hoxby (1994, 1998), Sander (in press), and Smith and Meier (1995) have sought to infer impacts on public schools from existing private school enrollments and to extrapolate those effects to more comprehensive choice systems. Unfortunately, private school

[3] Woods et al. (1998) have observed that particular barriers to response in education can include school personnel and management, school resources, school grounds and buildings, and school location.

enrollments are restricted by tuition, which in turn mitigates competitive pressures. We are able to study school competition under Arizona's competition-friendly charter school law that has generated more school competition than is present in any other American state.

Second, we are able to explicitly incorporate the *threat of entry* into our empirical work. This is valuable because schools may respond to potential competition regardless of the nature of the existent threat. In contrast, past empirical work has measured competition in terms of actual entry, usually using private school market share (Hoxby 1998, Dee 1998, Smith and Meier 1995); hence past work may have missed school changes induced by the threat of entry. Notably, we will not address outcome impacts, which should be the very last variables to change as a result of school reform (Bryk et al. 1998, 31-33). Rather, we will study the impacts of competition on school culture.

A Simple Model of Teacher Empowerment Change

The simple model we will construct assumes that an important goal of leaders of public school district is to maximize the district's resources over time, and that they weigh both the benefits and costs of achieving this objective.[4] With this assumption, the charter school threat is based on the potential that students will leave the district schools. Lower enrollments reduce district revenues in Arizona since state per pupil maintenance and operations subsidy, which provides most revenues for most of the state's school districts, moves with the student after a lag of several months to a year. Further, relative or absolute declines in district enrollments may tempt local authorities to reduce their financial contribution as well. That is, in accord with the logic of Hirschman (1970), an explicit exit option for parents may erode political voice at the local level. Districts may respond in a multitude of ways to the threat of lost revenue. Here we will examine whether—consistent with much of professional literature and advice cited above—

[4] This is in accord with Downs (1967) and Niskanen (1971), but for critiques, see Blais and Dion (1991). An alternative to the budget maximizing bureaucrat postulate is that school leaders seek to maximize district resources per student. In this case, if the marginal cost of educating an exiting student is high, while the associated loss in revenues is low, then the district may be relatively unconcerned about losing the student. Unfortunately, we do not have any reasonable data on marginal cost, and so revert to budget maximization as a fallback position.

administrators seek to give teachers greater influence in school governance in the hope that it will enhance school performance, stemming revenue losses due to exiting students.

Should this analysis be conducted using as decision-making units the districts or the individual schools? Key teacher empowerment changes are likely to be initially authorized by district officials, since the central district office holds policy-making authority (Hess 1999; Rofes 1998). However, changes in school governance will be implemented at the individual school. Given that the real impact of policy decisions is largely shaped by implementation (Pressman and Wildavsky 1984; Sabatier and Mazamanian 1981), it is the behavior of school-level staff and administrators that will primarily determine the success of any changes. Hence we use the individual schools as our unit of analysis.

The Costs of Implementing Teacher Empowerment Changes

We postulate that increasing teacher empowerment requires behavioral changes for two sets of actors at the school level: [1] the teachers themselves, and [2] their immediate school administrators (especially their principals). We also postulate, a la Allison (1971), that the costs of inducing these behavioral changes -- in terms of persuasion and monitoring activities – are a negative function of empowerment experience levels for both actor sets. That is, schools with high initial teacher participation in decision-making face lower organizational costs when attempting to increase teacher empowerment. In contrast, schools with low initial participation levels will face higher persuasion and monitoring costs; further, due to tenure rules, it would be difficult to evade these costs by hiring new staff. In particular, asking teachers to participate more actively in such managerial tasks as school budgeting, ability grouping, and staff hiring may be a complex undertaking, as teachers traditionally have practiced decision-making only at the individual classroom level. These broader managerial tasks require teachers to think beyond their individual classrooms and consider school-wide needs; at times, this will require new work habits and outlooks (see collected works in Kerchner and Koppich 1993). Promoting greater teacher empowerment also requires principals to modify their leadership styles. These

modifications can be costly for district officials in terms of persuasion and oversight activities, but will likely be less if principals have experience with shared governance.[5]

The Benefits of Greater Teacher Empowerment

Empowering teachers may help a school by: [1] improving its performance, thus reducing student exiting and the associated revenue loss, and [2] mitigating potential competition by reducing the number of entrepreneurial-minded district teachers who start competing schools (Nathan 1996; Maranto and Gresham 1999).[6] Concerning [1], districts face two types of competition that have differing effects on the benefits of change. First, districts face an entry threat: while no students are currently lost to charter schools, charters could enter the local market in the future. The relevant losses, then, are the associated future losses. These losses have a discounted value and may be difficult to predict, weakening the competitive impact of the entry threat. Further, this threat is not constant across districts, but varies with the district's reliance on state aid, as the latter moves with the student. We measure the extent of this entry threat by using the percentage of maintenance and operations (M&O) funds that a district receives from state authorities. We focus on state revenues because additional revenue losses due to local cutbacks are not statutory and so are less automatic. They may also occur farther in the future – there may be a lag between local officials noticing less students and then reacting to it -- and so these losses are more heavily discounted.

The second type of competition is actual entry, *e.g.*, whether the district is losing students to charter schools. The recognized revenue losses are now probably two-fold: the resultant reduction in state M & O funds and possible future cutbacks by local authorities (the timing of these latter cutbacks, although they occur with a lag, are now closer at hand and possibly more certain, and so are not discounted as heavily). When money is actually lost, the benefits from

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[5] Notably, similar challenges face other "post-bureaucratic" organizations in both the public and private sectors (Heckscher 1994).

[6] In addition, as Brehm and Gates (1997) conclude from their studies of local and federal bureaucrats, empowering public employees replaces monitoring by superiors with monitoring by peers. The latter is more effective because of the power of social groups, because most employees want to do a good job, and because of information assymetries across levels of hierarchy making it difficult for superiors to monitor subordinates.

promoting school change via teacher empowerment are more immediate; hence a market model suggests that greater charter school market share will increase the potential gains from teacher empowerment. The charter school market share for a district is used to measure revenue losses produced by existing competition.

Model Hypotheses

From the above discussion of costs and benefits, we offer two hypotheses.

H1: All else equal, competition will promote teacher empowerment to a greater extent in schools where teachers and administrators have prior experience with shared governance compared to schools without experience in shared governance.

As implied by our discussion on costs, it may be more difficult to monitor large than small schools (Downs 1967; Williamson 1967, 1975). This suggests a second hypothesis:

H2: Due to lower organizational costs associated with persuasion and oversight, competition will stimulate a greater response in smaller schools.

Methods

Teachers should be in the best position to observe empowerment changes. Accordingly, we asked teachers, in a March 1998 mail survey, to evaluate empowerment levels at their schools for both 1997-98 and 1994-95 (the latter based on recall) using 1-6 agree-disagree scales.[7] The dependent variables are *changes* in empowerment, measured at the school level. For example, if the school's mean rating of an empowerment item in 1994-95 was 4.50, but increased to 5.15 in 1997-98, then the dependent variable is +.65. (Positive numbers indicate increasing empowerment). By focusing on empowerment changes from 1994-95 to 1997-98, we measure

[7] While public opinion surveys often find that **voter** recall data is highly suspect, this may be because many voters spend relatively little time thinking about and then casting their vote. In contrast, teachers spend roughly 2000 hours a year at their job – hence their recall may be better. Indeed, a different study of public sector employees using recall data found bureaucrats able to remember the years in which organizational changes took effect (Maranto 1991). In any case, we do not believe that there is reason to suspect that past recollections of empowerment, even if imperfect, are systematically biased. In particular, because teachers are anonymously evaluating specific behaviors (rather than overall performance) of a superior, it seems unlikely that they would either feel embarrassed by the level of their rating or impelled to rationalize school performance.

effects that probably occurred as competitive responses, since 1994-95 was the last school year prior to the start of charter schooling in Arizona.

This short time period reduces the chance that economic or demographic changes drove changes in schools. It also minimizes simultaneity between our dependent and independent variables, *e.g.*, changes in outreach induced by competition (the dependent variable) probably cannot feed back and significantly alter charter school market share (an explanatory variable) in this short period of time. This is particularly true because charter enrollment grew by 63% from 1996-97 to 1997-98, meaning that most of the enrollment growth came toward the end of the period under study. By analyzing one state, we also eliminate many other potential sources of state-induced variance. Finally, we chose to focus on elementary schools (grades K-8), where competition for "typical" students is most intense. Charter high schools, on the other hand, tend to target "at-risk" students, and districts often welcome charter schools that siphon off such students. Arizona educators explained this market bifurcation by noting that charter operators can afford elementary programs, but lack funds for more expensive high school infrastructure (items such as stadiums or labs).

Sampling

Districts were sampled based on the number of charter schools in the district. Arizona has 204 school districts with elementary schools. Of these, only 45 had charter schools within their borders in 1997-98. To maximize variation on the key explanatory variable, we sampled 24 of the 25 school districts where charter schools accounted for 30% or more of the public elementary schools. The remaining sampled districts – labeled the low-penetration group -- includes 19 of the 159 districts with no charters; these were matched up as closely as possible on district enrollment, poverty and racial composition with the 24 high-penetration districts. To improve the group match, we added to the low-penetration group two large districts with very low charter school penetration. This process yielded high and low penetration districts with very similar size and demographics (see Table 1). Save for charter school market share, t-tests find no differences

significant at $p < .10$. Ninety-eight schools were then randomly selected in these 45 sample districts.

TABLE 1 ABOUT HERE

We randomly sampled one school from school districts with fewer than five elementary schools, two from districts with 5-11 elementary schools, and four from districts with 12 or more schools.[8] For each school, 18 teachers who had taught at the school for three years or longer were sampled. If fewer than 18 teachers met the criterion, then all were sampled. Respondents were paid $5 for participating, yielding a return rate of 79.1%. Of the 1065 respondents, 75 (7.0%) indicated that they were not working for their current school in 1994-95, and so were dropped from analyses since they did not directly observe 1994-95 conditions. Eliminating schools with fewer than five respondents left 87 schools with 959 teachers (a mean of 11.02 teachers per school).

Dependent Variables

We use ten measures of teacher empowerment. The first three assess how much control teachers have over their classrooms: picking textbooks, determining content, and determining teaching techniques. Seven indicators ask teachers to assess how much influence teachers at their schools have over school budgets, in-service programs, ability grouping, curriculum, classroom discipline, class schedules, and hiring new teachers. Survey questions measuring these dimensions were taken from the U.S. Department of Education School and Staffing Surveys (Chubb and Moe 1990; U.S. Department of Education 1994), and were pre-tested in Arizona in January 1998.

We elected not to create an index of the ten variables. We do not lump all ten dependent variables into a single aggregate measure of empowerment, since these dimensions may be affected in different ways by competition. For example, in response to competition, schools may allocate greater staff control to in-service programs than teacher hiring (the latter control lever

[8] In Mesa, which accounts for 9% of Arizona public school enrollment, we sampled fifteen schools.

may be particularly important to administrators since it is often difficult to remove teachers once tenure has been granted). As well, a latent threat may stimulate greater empowerment for more familiar dimensions of shared governance such as picking textbooks, while an actual threat may be required to stimulate empowerment increases in dimensions traditionally controlled by administrators, such as school budgeting. Table 2 provides descriptive statistics on the variables.

TABLE 2 ABOUT HERE

To test H1 -- that schools with little experience in shared governance are less likely to increase teacher empowerment -- we used a multi-stage process to segment the sample. Recall that our conceptual model predicts that the actions of both teachers and principals determine the extent to which a school has experience with shared governance. Accordingly, we segment our sample into high and low experience levels using measures of both teacher empowerment and principal behavior in 1994-95. (Note that using 1994-95 data for this segmentation is not akin to selecting on the dependent variable – the dependent variable is the *change* in empowerment from 1994-95 to 1997-98, not the initial 1994-95 level.)

First, for a given dimension of teacher empowerment we segment the sample into high and low empowerment schools for 1994-95. For example, the median teacher empowerment level in 1994-95 for in-service training at the school level is 2.84 on a 1-6 scale. For our analyses, teaching staffs with a 1994-95 mean for this item below 2.84 are considered to have little experience with empowerment on this dimension, while others have high experience with empowerment on this dimension. We repeated this segmentation process for school administrators, focusing on the school principal's primary role in managing policy changes at the school level (Barth 1980). We used an agree-disagree item "The principal consults with staff members before making decisions that affect them" for the 1994-95 school year. We postulate that principals who consulted with their staffs a great deal prior to competition would find it more feasible to pursue teacher empowerment. The median 1994-95 value for this question was 3.80 at the school level.

Using these two forms of segmentation, we divided schools into two groups for each empowerment dimension:

1) *Group 1* schools with a mean 1994-95 score *below* the median and also *below* the median for principal consultation.

2) *Group 2* schools with a mean 1994-95 score *above* the median and also *above* the median for principal consultation.

Group 1 schools, then, had low experience with shared governance in 1994-95 for a given dimension, while Group 2 schools had a high experience level. Unfortunately, segmenting the data in this fashion eliminates many cases. Accordingly, we left the teacher empowerment measures unchanged, but used the lower two-thirds (rather than one-half) of the schools on the principal consultation measure in Group 1, and the upper two-thirds in Group 2. With this method it is impossible for a school to fall into both groups, but the number of observations increases by 25-40%.[9]

Independent Variables

We measure the actual threat by the charter market share, which is the total charter elementary (K-8) population in a district divided by the total public (district plus charter) K-8 population in the district. (See table 2 for descriptive statistics.) This measure is imperfect since students may attend charter schools outside their districts (unfortunately, data on this factor does not exist). Still, the figure is likely to be reasonably accurate for elementary students, since parents are less likely to transport younger students long distances.

Second, we use the percentage of district maintenance and operations (M & O) subsidies received from the state (which follow parental enrollment decisions – denoted as subsidy) to measure the latent threat of competition. School districts with a low subsidy level may be less concerned about a charter entry threat, and vice versa for districts with a high level. Of the 45

[9] In all, Goups 1 and 2 encompass roughly 75% of our total schools in our sample. The remaining 25% had a mixed record for shared governance in 1994-95, e.g., teacher empowerment was high while the principal did not consult actively with staff, or vice versa.

sample districts, eight received less than one-third of their M & O budget from the state, while 13 received over two-thirds. This variable was stable for 1995-1998, varying by less than 5% for 64.4% of the districts, and by less than 10% for 90.0% of them.

Finally, to assess possible synergistic effects from charter market share and subsidy, we include an interactive term, e.g., market share times subsidy. Actual entry plus a high subsidy may spur more school changes due to intensified competition. Alternatively, as suggested by organizational theory, institutional constraints may limit school changes beyond a certain level of competition, especially in the short run. If the latter reasoning holds, then this coefficient would be signed negative. Finally, school enrollment is added as an independent variable to test H2.

Omitted Variables

Omitted variables might influence both empowerment changes and charter school market share, rendering spurious the seeming impacts of charter competition on teacher empowerment. For example, highly motivated parents in a school district could be driving both teacher empowerment and charter schooling. We doubt that this occurs, however, since the independent variables are the reported changes in teacher empowerment from 1994-95 to 1997-98, a relatively narrow time period. Such impacts should probably already be embedded in the 1994-95 baseline. Second, interviews with Arizona educators suggest that charter formation was often driven by the perceived unresponsiveness of certain school districts to parental concerns. We suspect that such districts were not posed to initiate teacher empowerment.

Third, individual teacher characteristics, such years of service, could affect how teachers assess empowerment changes. We tested for this by regressing, at the individual teacher level, nine teacher characteristics (years taught, graduate education, union membership, undergraduate major, race, gender, political party, salary, and full or part time status) on the ten empowerment indicators, finding very low adjusted R-squares (none higher than .03); in particular, only full time status was statistically significant in more than two of our indicators. These results suggest that individual teacher characteristics do not greatly influence empowerment changes. In

addition, full time status did not correlate significantly with any independent variable (the highest correlation was .04), and so excluding it from our regressions would not bias our results.

Another possible concern is that teachers with high 1994-95 empowerment levels are more optimistic, and so will overstate any empowerment increases after 1994-95. If this is true (and we have no reason to suspect that it is – if anything, veteran teachers are often reported to be highly cynical about public school reform efforts), then empowerment levels should rise across all Group 2 schools, and the competition variables would be statistically insignificant. A related argument is that school decentralization efforts, which may be likelier to occur in Group 2 schools due to lower organizational costs, might be responsible for any empowerment changes observed in these schools. Again, if this is the major driver for any empowerment changes in Group 2, then these changes should occur uniformly across these schools, and competition would again be insignificant. We will see shortly that this is not the case for the Group 2 schools, which suggests that neither teacher optimism nor school decentralization efforts can be used to explain our results.

A final issue is whether our regressions suffer from "regression to the mean," *e.g.*, organizational traits significantly above or below the norm will tend to converge to it over time. However, this phenomena would only bias results if it were significantly correlated with independent variables such as market share, and we do not believe there is any reason to suspect such a correlation. Otherwise, any effect would wash out across the sample. Indeed, findings are the opposite of those predicted by regression to the mean.

Results

Results using OLS analysis are reported in Table 3 for the ten dimensions of teacher empowerment. Results are presented separately for the Group 1 schools (with low initial empowerment levels) and Group 2 schools (high initial levels). H1 predicts that competition will more likely induce empowerment increases in the latter schools due to lower costs.

TABLE 3 ABOUT HERE

The competition variables (subsidy, market share and the subsidy-market share interaction term) generally proved insignificant for the relatively unempowered schools of Group 1. However, in two regressions – selecting textbooks and school curriculum – the charter school market share variable had a statistically significant ($p < .05$) negative effect on teacher empowerment. In short, in schools where teachers initially played a relatively small role in school governance, competition either had no effect or actually reduced the extent of their role.

On the other hand, the relatively empowered schools of Group 2 demonstrated competition-driven growth in teacher empowerment during the 1994-95 to 1997-98 time period. For eight of the ten dimensions of school governance, at least one of the two main competition variables had a positive and statistically significant effect ($p < .05$ for six regressions, $p < .10$ for two). Schools with high 1994-95 empowerment levels which then faced competition were much more likely to increase teacher empowerment than were similar schools not subjected to competition. However, the persistent negative value of the interaction term (subsidy * market share) suggests there is a ceiling effect on the impact of competition.

To assess the impact of the interaction term, we insert representative values for subsidy and market share into the regressions with statistically significant competition variables and estimate the effects.[10] We could use the extreme low and high values for state subsidy (.6% and 94.1%) and for market share (0% and 32.5%) across our forty-five Arizona school districts, but these values are not representative of the typical Arizona district. We instead use more representative values by using the value at the top of the lowest quintile of districts and the value at the bottom of the top quintile for both market share and state subsidy percentage. This three-quintile change from the 9th to 37th ranked district produces market shares ranging from 0% to 7.74% and state subsidy percentages ranging from 36.6% to 75.2%. Inserting these values into the regressions permits us to calculate the changes produced by a three quintile change in one or both competition variables.

[10] This includes two Group 1 and eight Group 2 regressions.

TABLE 4 ABOUT HERE

The results are reported in Table 4 for the Group 1 and Group 2 regressions in which at least one competition variable was statistically significant at $p < .10$ or better. For the unempowered Group 1 schools, if market share alone is increased from zero to 7.74%, the reduction in empowerment is clearly negative for the two relevant dimensions (-.62 for picking textbooks and -.41 for school curriculum). In the near term, since changes in market share are probably the more likely occurrence (as noted earlier, the subsidy variable was generally stable from 1994-95 to 1997-98), it follows that the likely near term impact of competition for the Group 1 schools is moderately negative for these two dimensions. However, the large positive size of interaction term means that the full impact of competition (subsidy plus market share) is only slightly negative for selecting textbooks (-0.12 on the one-to-six scale used to measure the dependent variable, or a -2.40% change over the length of the scale),[11] and is slightly positive (+.11, or +2.20%) for school curriculum.

Turning to the relatively empowered Group 2 schools, we see that the overall impact of competition (subsidy plus market share) is always positive for the eight regressions. The size of this overall impact ranges from slightly positive for five of the indicators (+.08 to +.48) to moderately positive for three indicators (+.76 to +.99).

Focusing on increasing market share alone (which, as noted earlier, is probably the likely change in competition for Arizona traditional public schools in the near term), the impact grows slightly for most indicators in the relatively empowered schools. Five of the dimensions of empowerment increase by 6% to 10% and two others increase by 15% to 25%. Competition appears to have no statistically significant effects on just two dimensions in these schools—namely, discipline and teaching techniques.

For three governance indicators (school curriculum, selecting textbooks, and selecting content) the threat of entry alone noticeably increased empowerment levels in the already

[11] If this seems at all confusing, just recognize that moving from 1 to 2 on a 1-6 scale is equivalent to a 20% shift along the scale. These percentage figures are not intended to be read too precisely, given the categorical nature of the dependent variable, but they do help to conceptualize real effect size.

empowered schools (by 10% to 18%). However, when actual charter school penetration occurs, the combined impact of a high subsidy rate and high market share is to reduce these empowerment increases by approximately half. Administrators were less willing to empower teachers on these dimensions in the presence of an actual threat than they were when facing a latent threat. This pattern was not the norm, but does present an interesting and counterintuitive pattern worthy of further consideration.

Overall, the already empowered schools exhibit slight to moderate positive effects due to competition, with the three-quintile shift in competition driving empowerment increases that range from 2% to 20%. Given the major difference in the impact of competition on Groups 1 and 2, we conclude that—consistent with our primary hypothesis—competition is much likelier to increase empowerment in schools with low implementation costs, *e.g.*, where shared governance was already in place prior to competition. In addition, in the short run, competition also increases the disparity in shared governance between Groups 1 and 2.

Finally, the H2 prediction that school size affects competitive response receives no support from the data. The school size variable is always insignificant. However, we should be cautious in interpreting this non-finding. Since only 14% of the schools in our sample enrolled less than 400 students, there may not be variation sufficient to fully capture the effects of school size.

Conclusion

Perhaps most significantly, we find that competition produced very different effects on school governance in schools that initially had high levels of shared governance versus those with low levels. This finding is not as surprising as it may seem, as it comports with research on organizational behavior (Allison 1971; Peterson 1976; Simon 1997) suggesting that public administrators will respond to new situations by using processes and tools with which they are familiar. In Arizona elementary schools where teachers already had a relatively strong voice in school governance, choice-induced competition has caused slight to moderate increases in teacher empowerment for eight of the ten dimensions we examine. As suggested by our

conceptual model, this strong initial voice probably lowers the organizational costs associated with raising empowerment for these schools; ergo, when faced with competition, they are more likely to increase shared governance. The traditional elementary schools where teachers were not initially involved saw no similar gains, suggesting that, in the short run, school competition increases the disparity between more and less empowered teaching staffs. Indeed, in two areas, selecting textbooks and determining the school wide curriculum, these schools actually reduced the teacher role slightly to moderately, depending on various types of competition faced by these schools.

In short, concerning empowerment, schools respond to stress by using the principle of comparative advantage, *e.g.*, they do more of what they are already skilled at doing. Schools which lack experience with shared governance do not experiment with it—even at the behest of the professional education community—when facing competition. In turn, our results